Check List 10(2): 299–307, 2014
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ISSN 1809-127X (available at *www.checklist.org.br*)

Check List
Journal of species lists and distribution

Lists of Species

# Odonata (Insecta) from Nova Xavantina, Mato Grosso, Central Brazil: Information on species distribution and new records

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**Abstract:** Odonates are found in all freshwater environments, and are specially species rich in tropical freshwater ecosystems. Currently about 800 odonate species are known to Brazil, but only 29% of the Brazil territory have been surveyed for this group. Here we provide a species list with information on distribution and new records for Odonata in nine streams in Nova Xavantina, Mato Grosso, Central Brazil. We used the scan procedure with a fixed area for three days in each stream between 10:00 and 14:00h. We collected 1038 dragonfly specimens belonging to 67 species, which represents 8% of the known Brazil odonate fauna. Additionally, five new records for the study area are presented.

## Introduction

The order Odonata currently comprises about 6.000 species (Trueman 2007), but recent studies estimate the richness of this group to be 7000 species (Kalkman *et al.* 2008). About 1.727 species are known in the Neotropics (von Ellenrieder 2009), of which 220 are endemic (Pinto and Carvalho 2009). The Odonata is represented by three suborders, Zygoptera, Anisoptera and Anisozygoptera, the last one recorded only in Japan and eastern Himalayas (Kalkman *et al.* 2008). The suborders Anisoptera and Zygoptera are present in Brazil, comprising about 800 species (Souza *et al.* 2007), which represents 46% of the Neotropical fauna. Considering that Brazil is the largest country in South America, the number of species may be much higher, since only 29% of the Brazilian territory has been surveyed for species of Odonata (De Marco and Vianna 2005). However, nowadays this percentage could be much higher, since there are a growing number of new records and new species being described (Pinto and Lamas 2011; Lencioni 2013).

Odonata have a complex life cycle, with an aquatic larval stage and a terrestrial/aerial adult stage. They are widely distributed in tropical and temperate freshwater ecosystems (Corbet 1999). Anisoptera are robust, conspicuous insects in which the base of the wings are different, whereas Zygoptera are less robust and have the base of the wings similar. Adult males of some species generally defend territories around streams (Resende 2010). Given the complexity of their life cycle, several authors have pointed out the importance of the group in studies evaluating and monitoring the conditions of freshwater environments (Oertli 2008; Silva *et al.* 2010; Pinto *et al.* 2012; Monteiro Júnior *et al.* 2013).

The lack of taxonomic and biogeographic knowledge, called Linnean and Wallacean shortfalls, respectively (Whittaker *et al.* 2005), is widely recognized as a real issue that limits the ability to establish effective strategies for the conservation of most tropical species (Whittaker *et al.* 2005; Leite *et al.* 2008; Diniz *et al.* 2010). These impediments also prevent the building of a complete understanding of biogeographical patterns of species (Diniz *et al.* 2010). However, it also posit the need to circumvent these limitations, either using new techniques, such as species distribution modeling (e.g. Almeida *et al.* 2010), or by concentrating sampling efforts on areas that represent knowledge gaps (Diniz *et al.* 2010).

Only 2.2% of Cerrado Biome is legally protected (Klink and Machado 2005).The intense land cover changes occasioned mainly by agricultural and cattle farming (DeFries *et al.* 2013) can lead sensitive species to local extinction before they have been described. Although the number of surveys of other taxa in the state of Mato Grosso have increased in recent years (Salles *et al.* 2004a, b; 2011; Shimano *et al.* 2010a, 2011b; Nogueira and Cabette 2011; Dias–Silva *et al.* 2010; Polegatto and Batista 2007), this knowledge gap persists to Odonata (De Marco and Vianna 2005), since there is only one work in the region (Juen *et al.* 2007). Thus, our goal is to present a list of adult odonate species collected in Cerrado streams in Nova Xavantina, Mato Grosso, Central Brazil, providing new records and information on species distribution.

## Materials and Methods

### *Study area*

We collected adult Odonata specimens in nine streams, tributaries of the Ribeirão Antártico and Pindaíba River Basins, both belonging to the Rio das Mortes River Basin in Nova Xavantina, eastern Mato Grosso, Brazil (Table 1 and Figure 1).

The predominant vegetation in the study area is typical of the Cerrado Biome. The climate is humid tropical, *Aw* according to Köppen system, with two distinct seasons:

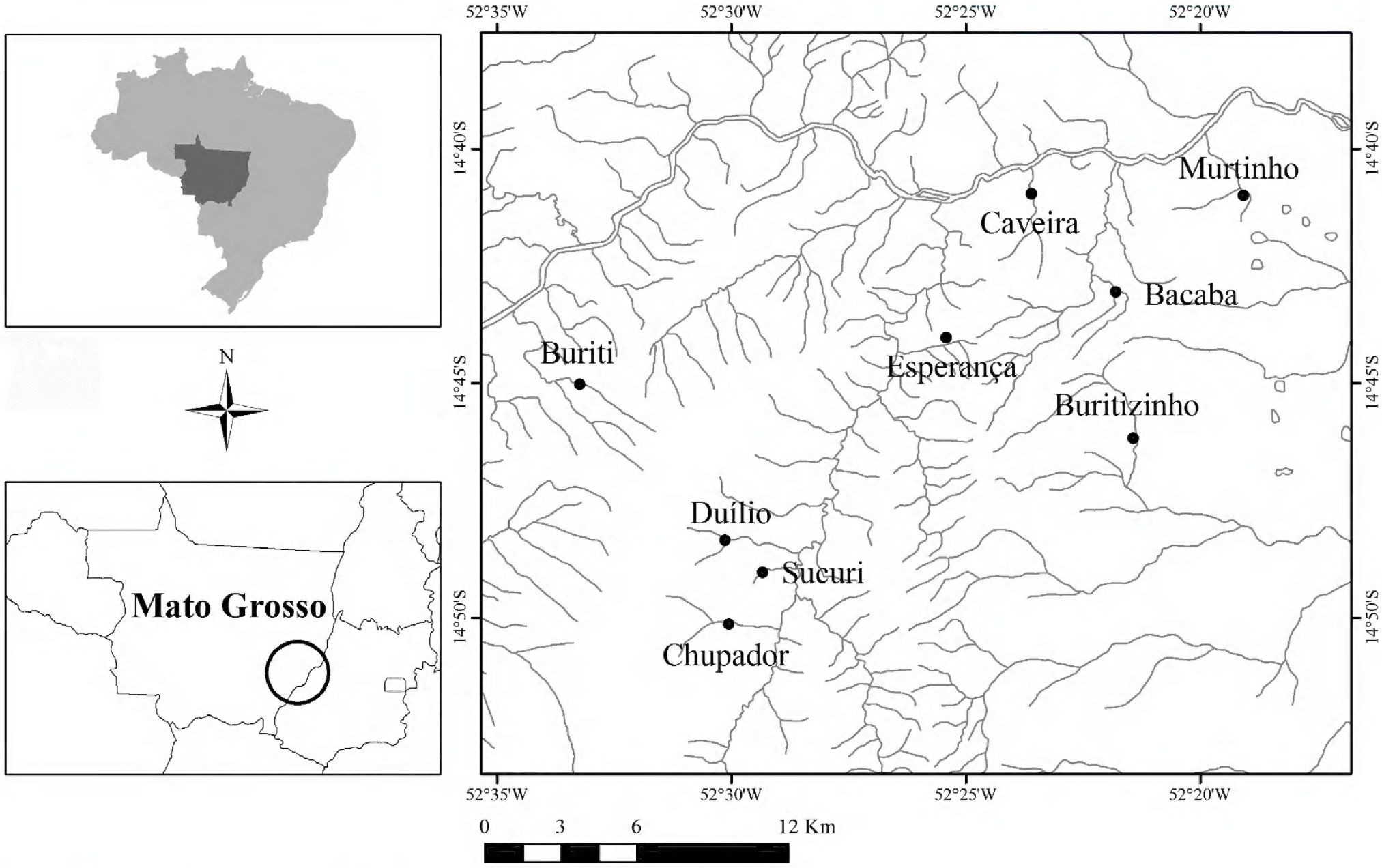


**Figure 1.** Streams sampled at Nova Xavantina, eastern region of the State of Mato Grosso, Brazil.

**Table 1.** Locality and geographic coordinates of the streams sampled.

| WATERCOURSES | GEOGRAPHIC COORDINATES |
|---|---|
| Bacaba stream | 14°43′3.4″ S, 52°21′48.3″ W |
| Buriti stream | 14°45′01.4″ S, 52°33′14.4″ W |
| Chupador stream | 14°50′08.7″ S, 52°30′03.7″ W |
| Duílio stream | 14°48′21.1″ S, 52°30′08.3″ W |
| Sucuri stream | 14°49′02″ S, 52° 29′20″ W |
| Buritizinho stream | 14°46′10.91″ S, 52°21′25.90″ W |
| Caveira stream | 14°40′58″ S, 52°23′36″ W |
| Esperança stream | 14°44′2″ S, 52°25′25″ W |
| Murtinho stream | 14°41′0.21″ S, 52°19′4.84″ W |

a rainy season (October–March) and a dry season (April – September) with annual mean temperature of 24.77° C and rainfall of 1.500 mm (Klink and Machado 2005). The main economic activity in the region is cattle farming and agriculture (Alencar *et al.* 2004).

*Sampling*

We collected adult Odonata specimens in April and August 2011, using the scanning procedure in fixed areas (De Marco and Resende 2002; Juen and De Marco 2011). We collected Odonata with a sweep net for three days in each stream between 10:00h and 14:00h. We followed the methodology of Lencioni (2005) for mounting and packaging the specimens. Vouchers are housed at the Zoobotanical collection "James Alexander Ratter", Universidade do Estado de Mato Grosso at Nova Xavantina, Laboratório de Entomologia, Departamento de Biologia, Nova Xavantina, Mato Grosso, Brazil. We used the following identification keys: Borror (1942); Garrison *et al.* (2006); Lencioni (2005a, 2006b) to identify specimens.

## Results and Discussion

We collected 1.038 specimens belonging to 67 species, representing 8% of the known Brazilian odonate fauna. Specimens were from six zygopteran families (n = 709), Calopterygidae (n = 85), Coenagrionidae (n = 584), Dicteriadidae (n = 1), Perilestidae (n = 3), Polythoridae (n = 2), and Protoneuridae (n = 34). Anisoptera were exclusively libellulids (n = 329) (Table 2). These records represent five new records for Nova Xavantina, MT.

Libellulidae was the most speciose family, possibly due to high dispersal and termorregulatory abilities (Corbet 1999; May 1976). Coenagrionidae was the most abundant family, mainly the genus *Argia* (Rambur, 1842). This genus is widely distributed throughout the New World, and highly diverse in the Neotropics (Caesar and Wenzel 2009), probably due to endophytic oviposition and climbing behavior of larvae (Fulan and Henry 2007).

Although the number of studies dealing with behavioral aspects of Odonata (e.g., microhabitat selection; (De Marco 1998) – environmental control in Odonata communities; (Ferreira–Peruquetti and De Marco 2002; Juen and De Marco 2012) – thermoregulation (De Marco and Resende 2002; De Marco *et al.* 2005) have increased in recent years (Resende 2010; Resende and de Marco 2010), Mato Grosso still represents a key gap for species records (De Marco and Viana 2005).

The genus *Oxyagrion* (Selys, 1876) is composed of 23 species occurring in South America, of which 18 occur in Brazil (Dalzochio and Rodrigues 2009). The genus *Oligoclada* Karsch, 1890 occurs throughout South America, with high richness in the Amazon. Recently, *Oligoclada xanthopleura* Borror, 1931 was registered in Pará and Mato

Grosso (Pinto and Lamas 2011). This substantial increase of new records is due mainly to increased sampling efforts in different Brazilian regions. However, some genera, such as *Argia*, *Acanthagrion* and *Telebasis* are very common in entomological collections, but with many undescribed species (Paulson 2009).

This study adds new knowledge to the odonate fauna of Nova Xavantina, as well as the record of a new genus being described by Muzon J. (F.A.A. Lencioni pers.com.).

*New Records*

**Anisoptera**

***Gynothemis pumila* Karsch, 1890**

Material examined: 1 ♂

Adults of this species fly 2 m above ground in florest clearings (Garrison *et al.* 2006). Its larvae is known [Fleck, 2004] (Garrison *et al.* 2006).

**Zygoptera**

***Acanthagrion abunae* Leonard,1977**

Material examined: 1 ♂

Neotropical genus with 39 known species, of which 22 occur in Brazil (Lencioni 2006; von Ellenrieder and Lozano 2008). Its larvae is not known (Lencioni 2006).

***Oxyagrion sulmatogrossense* Costa, Souza & Santos, 2000**

Material Examined: 1 ♂

Some species of this genus are found in clear water environments (Costa *et al.* 1984). Its larvae is not known (Lencioni 2006).

***Telebasis gigantea* Daigle, 2002**

Material Examined: 3 ♂

This species is found on the banks of streams and ponds shaded (Garrison 2009). According to this author this species appears late in the afternoon between 16:30h and 17:30h. Some species of this genus are found in slightly altered environments, possibly because its larvae have a climbing behavior (Fulan and Henry 2007).

***Tuberculobasis inversa* (Selys, 1876)**

Material Examined: 1 ♂

Previously assigned to the genus *Leptobasis* Selys, 1877, *T. inversa* is a poorly known species that occurs in South and Central America (Machado 2009). The occurrence in the Cerrado corroborates the model by Almeida *et al.* (2010). Previously recorded only in Amazonas, Pará, and Rondônia (Machado 2009).

## Discussion

We found high diversity of Odonata species in Nova Xavantina county, Mato Grosso. It represents 8% of the recorded fauna of Brazil, with the first record to *Telebasis gigantea*. We suggest a concentration in sampling effort for the region, in order to complete the Odonata fauna of the state. For example, in the suborder Anisoptera we sampled only Libellulidae family. The absence of records for Aeshnidae, Gomphidae and Corduliidae may be associated with the difficulty in collecting individuals of these families since they are excellent fliers, and some genera, like *Gynachanta*, may have phytotelmata individuals with crepuscular habits (Bede *et al.* 2000). These difficulties are reflected in the scarcity of individuals in entomological collections and not necessarily in their biogeographical distribution. Thus, the *check list* presented here adds important information that will foster future studies on odonate species distribution.

**Table 2.** Check list of Odonata recorded in streams of Nova Xavantina, Mato Grosso, Brazil and its distribution in the Neotropics and in Brazil. The specimens were inserted in Zoobotânica collection "James Alexander Ratter" at the University of Mato Grosso, Nova Xavantina campus, Brazil.

**Country/Continent acronyms:** Ar = Argentina; Bo = Bolivia; CA = Central America; Ch = Chile; Co =Colombia; Ec = Ecuador; FG = French Guiana; Gu = Guiana; Me = Mexico; Pa = Paraguay; Pe = Peru; Su = Suriname; Trinidad = Tr; TT = Trinidad and Tobago; Ur = Uruguay; Ve = Venezuela
**Brazilian states acronyms:** AM = Amazonas; BA=Bahia; CE=Ceará; Distrito Federal=DF; ES=Espírito Santo; GO=Goiás; MA=Maranhão; MT=Mato Grosso; MS= Mato Grosso do Sul; MG = Minas Gerais; PA = Pará; PB = Paraíba; PR = Paraná; PE = Pernambuco; PI = Piauí; RJ = Rio de Janeiro; RN = Rio Grande do Norte; RS = Rio Grande do Sul; RO = Rondônia; RR = Roraima; SC = Santa Catarina; SP = São Paulo e TO = Tocantins.** News records. References: (1) Anjos–Santos and Costa 2006; (2) Assis *et al.* 2004; (3) Borror 1931; (4) Costa and Santos 2009; (5) Costa and Oldrini 2005; (6) Côrtes *et al.* 2011; (7) Dalzochio *et al.* 2011a; (8) Dalzochio *et al.* 2011b; (9) Dalzochio and Rodrigues 2009; (10) De Marco 2008; (11) De Marco *et al.* 2005; (12) Ferreira–Peruquetti and De Marco 2002; (13) Garrison 2009; (14) Garrison *et al.* 2006; (15) González–Soriano *et al.* 2008; (16, 17) Heckman 2006; 2008; (18) Irusta and Araujo 2006; (19) Juen and De Marco 2011; (20) Lencioni 2005; (21) 2006; (22) Machado 2009; (23) Machado *et al.* 1991; (24) Muzón *et al.* 2008; (25) Palacino–Rodríguez 2009; (26) Pinto and Carvalho 2009; (28) Pinto *et al.* 2012; (29) von Ellenrieder and Muzón 2008); (30) Carvalho *et al.* 2013; (31) Oliveira–Junior *et al.* 2013; (32) Garrison 1990; (33) Fleck *et al.* 2012.

| SPECIES | OCCURRENCE | | REFERENCES | VOUCHER | STREAMS SAMPLED |
|---|---|---|---|---|---|
| **ANISOPTERA** | **Neotropics** | **Brazil** | | | |
| **Libellulidae** | | | | | |
| *Diastatops intensa* Montgomery, 1940 | Pe, Pa, Ar, Ur. | PA, MT, MS, SP, RJ, RS. | 12, 14, 17. | 9293. | Buritizinho stream. |
| *D. obscura* (Fabricius, 1775) | Co, Ve, Gu, Pe, FG Bo, Pa, Ar. | PA, RR, MG, MA, BA, MT, MS, ES, SP, RJ, TO, RN. | 10, 11, 12, 14, 17, 18, 23, 26. | 7704, 8958, 8959, 8987, 8996, 8999, 9016, 9028, 9126, 9140, 9144, 9159, 9169, 9177, 9184, 9205, 9231, 9238, 9249, 9266, 9268, 9301, 9315, 9335, 9336, 9572, 9578, 9592, 9597, 9610, 9639, 9640, 9656, 9659, 9664, 9665, 9669, 9672, 9685, 9688, 96, 9196, 9696, 9997. | Buriti stream, Buritizinho stream, Caveira stream, Murtinho stream. |
| *Dythemis multipunctata* Kirby, 1894 | Ve, Co, FG, Ar, Pe. | MT, ES, RR, RJ, MS, SP, SC. | 2, 5, 7, 14, 17, 23, 29. | 8014, 8914, 9409. | Chupador stream, Esperança stream. |
| *Elasmothemis cannacrioides* (Calvert, 1906) | CA, TT, Co, Ec, Pe, Ve, FG, Ar. | MT, MG, ES, RR, RJ, SP. | 2, 5, 12, 14, 17, 23. | 8942, 8998, 9018, 9055, 9062. | Murtinho stream. |

**Table 2.** ***Continued.***

| SPECIES | OCCURRENCE | | REFERENCES | VOUCHER | STREAMS SAMPLED |
|---|---|---|---|---|---|
| *Erythrodiplax amazonica* Sjostedt, 1918 | Tr, Gu, FG, Pe, Ve. | AM, PA, RO, MT. | 14, 17, 30, 31. | 9913, 9916. | Buriti stream. |
| *E. basalis* (Kirby, 1897) | Co, Ar, Ve, Pe, | RO, ES, RR, AM, MA, PA, MT, MS, SP, RJ. | 5, 10, 14, 17, 23, 26. | 8941, 8943, 8944, 8948, 8950, 8954, 8957, 8963, 8967, 8974, 8981, 8994, 8995, 8997, 9000, 9003, 9005, 9007, 9008, 9034, 9041, 9049, 9054, 9074, 9084, 9087, 9091, 9092, 9096, 9098, 9104, 9105, 9111, 9116, 9117, 9127, 9132, 9138, 9157, 9165, 9172, 9214, 9217, 9223, 9223, 9232, 9240, 9246, 9247, 9253, 9259, 9269, 9271, 9272, 9281, 9294, 9304, 9357, 9364, 9369, 9400, 9407, 9447, 9551, 9600, 9646, 9671, 9673, 9678, 9682, 9697, 9698, 9700, 9713, 9714, 9719. | Buritizinho stream, Caveira stream, Esperança stream, Murtinho stream. |
| *E. fusca* (Rambur, 1842) | CA, Co, Ec, Pe, Ve, Gu, FG, Su, Bo, Pa, México, Ur, Ar. | AM, PA, RO, RN, BA, ES, MG, SP, RJ, SC, RS, MT, MS. | 5, 7, 10, 12, 14, 15, 17, 24, 25, 29. | 9002, 9043, 9089, 9094, 9134, 9142, 9149, 9160, 9161, 9179, 9207, 9208, 9216, 9227, 9229, 9263, 9274, 9288, 9312, 9314, 9358, 9367, 9370, 9382, 9383, 9384, 9387, 9391, 9398, 9414, 9417, 9434, 9435, 9442, 9446, 9457, 9459, 9460, 9466, 9471, 9473, 9474, 9475, 9481, 9483, 9485, 9487, 9493, 9525, 9527, 9533, 9536, 9550, 9557, 9558, 9576, 9605, 9636, 9649, 9650, 9661, 9662, 9666, 9668, 9674, 9680, 9684, 9689, 9692, 9704, 9712, 9731, 9735, 9737, 9739. | Buritizinho stream, Caveira stream, Esperança stream, Murtinho stream. |
| *E. juliana* Ris, 1911 | Co, Ve, Pe, Bo, Ar. | AM, RJ, MG, ES, TO, SP, MT. | 5, 14, 17, 29, 30, 31. | 7707, 7716, 7719, 7720, 7723, 7793, 7795, 7802, 7803, 7818, 7819, 7829, 7880, 8017, 8920, 8921, 8973, 9020, 9912. | Buriti stream, Chupador stream, Duílio stream, Murtinho stream. |
| *E. latimaculata* Ris, 1911 | Ve, Gu, Ar, Bo. | MG, BA, RJ, SP, AM, MT. | 12, 14, 17, 29. | 9123, 9284, 9667. | Buritizinho stream, Caveira stream. |
| *E. ochracea* (Burmeister, 1839) | Ar, Pa, Bo. | BA, MG, ES, SP, RJ, MT, MS. | 5, 11, 12, 14, 17, 24, 29. | 9022. | Murtinho stream. |
| *E. paraguayensis* (Förster, 1904) | Ar, Pa, Gu, Su, Bo, Ve. | MG, RJ, RR, MA, SP, RS, MT, MS. | 7, 10, 11, 12, 14, 17, 23, 24 | 9152, 9655. | Buritizinho, Caveira stream. |
| *Gynothemis pumila*** karsch, 1890 | Co, Gu, FG, Pe, Ve Trinidad e Tobago. | MT. | 14, 17, 26. | 7881. | Duílio stream. |
| *Macrothemis hemichlora* (Burmeister, 1839) | CA, TT, Co, Ec, Pe, Ve, Su, FG, Ar. | RJ, ES, PR, SC, RS, MT, MS, GO, SP. | 5, 7, 8, 14, 17. | 9444. | Esperança stream. |
| *Micrathyria atra* (Martin, 1897) | CA, Tr, Ec, Pe, Ve, Su, Gu, FG, Ar. | MT, PA, AM, BA, PE, ES, RJ, AP. | 5, 14, 17. | 8696, 8883, 9490. | Esperança stream, Duílio stream, Sucuri stream. |
| *M. hesperis* Ris, 1911 | Ve, Ar. | PA, PI, CE, PE, BA, ES, MG, RJ, SP, PR, SC, RS, GO, MT, MS. | 2, 5, 11, 14, 17. | 9131. | Buritizinho stream. |
| *M. pirassununga*e Santos, 1953 | – | DF, GO, ES, MG, RJ, SP, MT. | 5, 12, 14, 17. | 7710. | Buriti stream. |
| *M. spuria* (Selys, 1900) | Ve, Pa, Ar. | PR, RR, RJ, SP, MG, MT, MS. | 14, 17, 23, 24. | 9128, 9182, 9218, 9273, 9276, 9587, 9683, 9743. | Buritizinho stream, Caveira stream. |
| *Oligoclada abbreviata* (Rambur, 1842) | Ec, Pe, Ve, Gu, FG, Su. | AM, RO, PA, RR, MG, SP, RJ, ES, BA, PE, MT. | 3, 14, 17, 23, 28, 30, 31. | 9445, 9630, 9637, 9647. | Caveira stream, Esperança stream. |
| *O. walkeri* Geijskes, 1931 | Tr, Gu, FG, Pe, Ve, Ec, Su. | PA, ES, MT. | 5, 14, 17. | 9397. | Esperança stream. |
| *O. xanthopleura* Borror, 1931 | – | AM, PA, MT. | 3, 14, 17, 28. | 9019, 9023, 9143, 9187, 9209, 9265, 9352, 9368. | Buritizinho stream, Murtinho stream. |
| *Orthemis discolor* (Burmeister, 1839) | CA, Co, Ve, FG, Gu, Su, Ec, Pe, Bo, Pa, Chile, Ar, Ur. | RJ, ES, MA, SP, MG, MT, MS. | 4, 5, 10, 11, 12, 14, 15, 17, 24, 25, 29. | 9291, 9687, 9711. | Caveira stream, Buritizinho stream. |
| *Perithemis electra* Ris, 1930 | CA, TT, Co, Ec, Pe, Ve, FG, Pa, Bo. | MT, ES. | 5, 14, 17. | 9559. | Esperança stream. |

**Table 2.** ***Continued.***

| SPECIES | OCCURRENCE | | REFERENCES | VOUCHER | STREAMS SAMPLED |
|---|---|---|---|---|---|
| *P. lais* (Perty, 1834) | TT, Co, Equador, Pe, Ve, Gu, FG, Bo, Ar. | SP, ES, RR, PA, AM, MA, MT, MS | 5, 10, 12, 14, 17, 23 , 24, 26, 29. | 8960, 8977, 9078, 9120, 9124, 9125, 9129, 9137, 9146, 9156, 9171, 9199, 9206, 9220, 9228, 9230, 9233, 9244, 9250, 9252, 9262, 9267, 9275, 9310, 9353, 9365, 9366, 9373, 9380, 9385, 9386, 9439, 9479, 9542, 9561, 9653, 9654, 9663, 9702, 9703, 9723, 9745. | Buritizinho, Caveira, Esperança, Murtinho stream. |
| *P. mooma* Kirby, 1889 | Me, CA, Co, Ec, Pe, Ve, Gu, FG, Bo, Pa, Ar, Ur. | MG, ES, SP, RJ, SC, MS, MT. | 2, 5, 7, 12, 14, 17, 24, 29. | 9215, 9226, 9270, 9681, 9749. | Caveira stream, Buritizinho stream. |
| *P. thais* Kirby, 1889 | Costa Rica, TT, Ec, Pe, Ve, Gu, FG, Pa?, Ar. | SP, RJ, ES, PA, AM, MT, MS. | 5, 14, 17, 29. | 7893, 9415, 9424, 9424, 9428. | Esperança stream, Duílio stream. |
| *Planiplax phoenicura*Ris, 1912 | CA, TT, Ve, Gu, FG, Su. | MG, ES, SP, RJ, MT. | 5, 14, 17, 31. | 9141, 9181. | Buritizinho stream. |
| *Uracis siemensi* Kirby, 1897 | Ec, Co, Pe, Ve, FG, Su. | PA, AM, RO, MT, MA, GO, MG, SP. | 14, 17, 25. | 9915, 9917. | Buriti stream. |
| **ZYGOPTERA** | | | | | |
| **Calopterygidae** | | | | | |
| *Hetaerina curvicauda* Garrison, 1990 | Pe, Bo. | RO, MT. | 16, 21, 30, 31, 32. | 8971, 9073. | Murtinho stream. |
| *H. laesa* Hagen *in* Selys, 1853 | Pe, Ve, Gu, Su, FG. | PA, RO, MT. | 16, 21, 32. | 8675, 8872, 8875. | Duílio stream, Sucuri stream. |
| *H. rosea* Selys, 1853 | Pe, Bo, Pa, Ur, Ar. | RO, ES, MG, RJ, SP, RS, MT, MS, BA. | 5, 7, 12, 16, 21, 24, 29, 32. | 7897, 8023, 8911, 8923, 8982, 8985, 8986, 9025, 9045, 9305, 9392, 9411, 9431, 9436, 9482, 9486, 9488, 9489, 9494, 9496, 9501, 9508, 9519, 9534, 9535, 9537, 9537, 9539, 9541, 9554, 9564, 9635, 9858. | Buriti stream, Caveira stream, Chupador stream, Duílio stream, Esperança stream, Murtinho stream. |
| *H. westfalli* Rácenis, 1968 | Ve | AM, RR, RO, MT. | 16, 21, 23. | 8009, 8903, 8937, 9874 a 9881, 9886, 9887, 9888. | Buriti stream, Chupador stream. |
| *Mnesarete guttifera* (Selys, 1873) | Pa, Ar. | MG, MT, GO, SP, BA, DF, PR. | 16, 21, 29. | 7798, 7804, 7811, 7826, 7828, 7883, 7887, 7888, 7895, 7905, 7928, 7995, 8005, 8013, 8592, 8593, 8617, 8860, 8861, 8862, 8864, 8869, 8878, 8884, 8886, 8896, 8898, 8900, 9747, 9893, 9894, 9904, 9905. | Buriti stream, Chupador stream, Duílio stream, Sucuri stream. |
| **Coenagrionidae** | | | | | |
| *Acanthagrion abunae*** Leonard, 1977 | Gu, Pa. | MT, RO. | 16, 20. | 9891. | Buriti stream. |
| *A. apicale* Selys, 1876 | Ve, Gu, FG, Co, Ec, Pe, Bo. | PA, AM, MT, MS, RO. | 8, 16, 20. | 7706, 8660, 9859. | Buriti stream, Sucuri stream. |
| *A. ascendens* Calvert, 1909 | TT, Co, Ve, Gu, Su, Ec, Pe, Pa, Ar. | SC, AM, MS, AP, SP, GO, MT, RO. | 8, 12, 16, 20. | 9419, 9420, 9426, 9430, 9461, 9463, 9504, 9515, 9515, 9547, 9548, 9553. | Esperança stream. |
| *A. chacoense* Calvert, 1909 | Ve, Pe, Bo. | MS, MT. | 12, 16, 20. | 9155. | Buritizinho stream. |
| *A. gracile* (Rambur, 1842) | Me, CA, Co, Ec, Pe, Bo, Pa, Ur, Ar. | BA, ES, SP, RJ, RS, MS, MT. | 5, 7, 12, 16, 20, 24, 29. | 8945, 8969, 8978, 8980, 9012, 9014, 9015, 9038, 9057, 9061, 9063, 9070, 9071, 9081, 9122, 9164, 9167, 9196, 9212, 9328, 9331, 9339, 9342, 9404, 9405, 9406, 9408, 9410, 9418, 9421, 9423, 9425, 9427, 9432, 9443, 9449, 9451, 9452, 9455, 9462, 9464, 9465, 9477, 9478, 9480, 9502, 9503, 9505 a 9507, 9509 a 9514, 9516, 9529 – 9531, 9540, 9545, 9549, 9552, 9555, 9562, 9568, 9570, 9574, 9575, 9580–9583, 9594, 9596, 9599, 9601, 9606–9609, 9614, 9619, 9623, 9628, 9629, 9631, 9641, 9642, 9645, 9657, 9658, 9690, 9693, 9694, 9706, 9709, 9716, 9724 a 9730, 9736, 9750, 9751. | Buritizinho stream, Caveira stream, Esperança stream, Murtinho stream. |
| *A. minutum* Leonard, 1977 | Pe, Bo, Ve, Ar. | SP, MT. | 12, 16, 20, 24, 29, 31. | 9150, 9162, 9192, 9201, 9204, 9213, 9241, 9343, 9349. | Buritizinho stream. |
| *A. temporale* Selys, 1876 | Ar, Ve. | RR, ES, BA, MG, SP, MT. | 5, 12, 16, 20, 23, 29. | 9188. | Buritizinho stream. |

**Table 2.** ***Continued.***

| SPECIES | OCCURRENCE | | REFERENCES | VOUCHER | STREAMS SAMPLED |
|---|---|---|---|---|---|
| *A. truncatum* Selys, 1876 | Ve, Gu. | MT, MG, SP, TO. | 6, 12, 16, 20. | 8858, 8940, 8952, 8953, 8964, 8965, 8990, 9001, 9013, 9017, 9027, 9039, 9058, 9067, 9072, 9079, 9080, 9082, 9088, 9100, 9102, 9108, 9110, 9119, 9147, 9163, 9166, 9168, 9170, 9176, 9189, 9191, 9193, 9194, 9195, 9197, 9198, 9200, 9203, 9210, 9211, 9219, 9225, 9236, 9237, 9239, 9251, 9254, 9256, 9264, 9277, 9280, 9282, 9283, 9286, 9287, 9290, 9298, 9300, 9302, 9306, 9307, 9323, 9324, 9327, 9332, 9333, 9334, 9338, 9340, 9341, 9347, 9355, 9360, 9363, 9566, 9567, 9573, 9579, 9585, 9593, 9595, 9598, 9602, 9604, 9611, 9613, 9616, 9617, 9618, 9620, 9622, 9634, 9638, 9643, 9648, 9660, 9695, 9708, 9710, 9717, 9718, 9720, 9727, 9728, 9732, 9733, 9734. | Buritizinho stream, Caveira stream, Duílio stream, Murtinho stream. |
| *Argia chapadae* Calvert, 1909 | – | MT, TO. | 16, 20. | 8758. | Sucuri stream. |
| *A. hasemani* Calvert, 1909 | Ar. | AM, BA, MT. | 16, 19, 20, 29 | 8918. | Chupador stream. |
| *A. lilacina* Selys, 1865 | Pa, Ur, Ar. | MT, ES, MG, TO, SP. | 6, 12, 16, 20, 29. | 7703, 7725, 7879, 8939, 8946, 89951, 8975, 8976, 8979, 8984, 8991, 8993, 9006, 9030, 9051, 9052, 9053, 9056, 9060, 9065, 9068, 9075, 9101, 9112, 9118, 9303, 9860, 9867, 9870, 9871. | Buriti stream, Duílio stream, Murtinho stream. |
| *A. mollis* Hagen *in* Selys, 1865 | Bo, Pa, Ar. | AM, RO, MT, MG, SP. | 16, 20, 29. | 7711, 7718, 7728, 7801, 7882, 7885, 7886, 7890, 7898, 7899, 7900, 7903, 8000, 8007, 8616, 8659, 8683, 8697, 8752, 8857, 8859, 8863, 8865, 8866, 8867, 8870, 8877, 8880, 8881, 8882, 8885, 8887, 8889, 8892, 8894, 8901, 8905, 8919, 9908, 9909. | Buriti stream, Chupador stream, Duílio stream e Sucuri stream. |
| *A. oculata* Hagen *in* Selys, 1865 | Me, CA, Tr, Co, Pe, Ec, Ve. | AM e MT. | 17. | 8744. | Sucuri stream. |
| *A. reclusa* Selys, 1865 | Ar, Bo, Pa. | PA, AM, MG, SP, RS, MT. | 12, 16, 20, 29. | 7705, 7709, 7712, 7715, 7791, 7891, 7992, 8006, 8027, 8029, 8897, 8904, 8966, 9064, 9093, 9097, 9099, 9393, 9394, 9395, 9416, 9429, 9476, 9517, 9532, 9861, 9862, 9863, 9864, 9865, 9866, 9868, 9869. | Buriti stream, Chupador stream, Duílio stream, Esperança stream, Murtinho stream. |
| *A. smithiana* Calvert, 1909 | Bo. | MT, MG, GO. | 16, 20. | 7812, 7820, 7822, 7825, 7827, 7830, 7989, 7990, 8011, 8012, 8016, 8024, 8876, 8906, 8908, 8910, 8912, 8913, 8915, 8917, 8924, 8925, 8929, 8933, 9470, 9546, 9855, 9856. | Buriti stream, Chupador stream, Duílio stream, Esperança stream. |
| *A. subapicalis* Calvert, 1909 | Bo. | MT, MA. | 16, 19, 20 | 7713, 7889, 7902, 8856. | Buriti stream, Duílio stream. |
| *A. tinctipennis* Selys, 1867 | Pe. | AM, MT. | 16, 20. | 7708, 7714, 7717, 7721, 7722, 7724, 7726, 7790, 7792, 7794, 7797, 7799, 7806–7810, 7813–7817, 7821, 7823, 7824, 7878, 7892, 7894, 7896, 7901, 7904, 7987, 7988, 7991, 7993, 7997–7999, 8001– 8004, 8008, 8015, 8019–8022, 8025, 8026, 8028, 8030, 8591, 8605, 8606, 8613–8615, 8618, 8680–8682, 8710, 8713, 8714, 8718, 8719, 8729, 8731, 8737, 8748, 8767, 8768, 8868, 8873, 8874, 8879, 8888, 8890, 8891, 8893, 8895, 8907, 8909, 8927, 8928, 8930, 8932, 8935, 8936, 9422, 9450, 9882, 9895– 9907. | Buriti stream, Chupador stream, Duílio stream, Esperança stream, Sucuri stream. |
| *Cyanallagma ferenigrum* De Marmels, 2003 | – | MT, TO | 6, 16, 20. | 8961, 9010, 9024, 9066, 9106, 9130, 9175, 9224, 9326, 9362, 9625, 9707. | Buritizinho stream, Caveira stream, Murtinho stream. |
| Gen.nov. sp.nov (Muzon) | – | Querência–MT. | Personal information by Lencioni, F.A.A, 31. | 9154, 9322, 9356. | Buritizinho stream. |
| *Homeoura nepos* (Selys, 1876) | Pe, Bo, Ve, FG, Pa. | AM, PA, MT. | 16, 20. | 9190, 9260, 9285, 9296, 9297, 9299, 9346, 9389. | Buritizinho stream. |
| *Ischnura capreolus* (Hagen, 1861) | Co, Ec, Pe, Ve, TT, Gu, Su, FG, Pa, Ar. | PA, PE, BA, MT, ES, RJ, SP, RS. | 5, 12, 16, 19, 20, 24, 29. | 9202, 9221, 9235, 9255, 9258, 9295, 93099317, 9318, 9321, 9325, 9329, 9330, 93459348, 9351, 9372, 9388, 9755. | Buritizinho stream. |

**Table 2.** ***Continued.***

| SPECIES | OCCURRENCE | | REFERENCES | VOUCHER | STREAMS SAMPLED |
|---|---|---|---|---|---|
| *I. fluviatilis* Selys, 1867 | Ar, Ch, Bo, Pa, Ur, Ve, FG. | PA, MG, ES, MA, RJ, SP, RS, MT. | 1, 5, 10, 12, 16, 20, 24, 29. | 9248, 9311. | Buritizinho stream. |
| *Oxyagrion chapadense* Costa, 1978 | Ar, Pa. | BA, GO, MG, SP, PR, MT. | 7, 16, 20, 29. | 8698, 8751, 8753, 8938, 9399, 9438, 9454, 9492, 9544, 9590, 9889, 9890. | Buriti stream, Chupador stream, Esperança stream, Sucuri stream. |
| *O. fernandoi* Costa, 1988 | – | MT. | 16, 20. | 9121, 9133, 9180, 9180, 9185, 9222, 9308, 9354, 9390. | Buritizinho stream. |
| *O. sulmatogrossense*** Costa, Souza & Santos, 2000 | – | MS, PR, MT. | 9, 16, 20. | 9872. | Buriti stream. |
| *Telebasis coccinea* (Selys, 1876) | Pa. | BA, TO, MG, MT. | 13, 16, 20, 22, 31. | 9004. | Murtinho stream. |
| *T. gigantea*** Daigle, 2002 | Bo. | MT. | 13 | 9883, 9884, 9885. | Buriti stream. |
| *Tigriagrion aurantinigrum* Calvert, 1909 | Ar, Pa , Bo. | MT, MG, SP. | 12, 16, 20. | 7727, 7796, 8947, 8955, 8992, 9009, 9011, 9032, 9035, 9040, 9050, 9069, 9077, 9109, 9135, 9136, 9153, 9173, 92 43, 9261, 9316, 9350, 9412, 9437, 9456, 9458, 9469, 9520, 9522, 9569, 9586, 9603, 9615, 9621, 9624, 9626, 9627, 9632, 9644, 9651, 9670, 9701, 9721, 9740, 9742. | Buriti stream, Buritizinho stream, Caveira stream, Chupador stream, Esperança stream, Murtinho. |
| *Tuberculobasis inversa*** (Selys, 1876) | | AM, PA, RO, MT. | 22. | 8970. | Murtinho stream. |
| **Dicteriadidae** | | | | | |
| *Heliocharis amazona* Selys, 1853 | Co, Ec, Pe, Ve, Gu, Su, FG, Pa, Ar. | AM, SP, ES, MG, GO, MT. | 12, 16, 21, 29, 33. | 9107. | Murtinho stream. |
| **Perilestidae** | | | | | |
| *Perilestes solutus* Williamsom & Williamsom, 1924 | – | RR, RO, MT, PA. | 16, 21. | 9403, 9467, 9468. | Esperança stream, Sucuri stream. |
| **Polythoridae** | | | | | |
| *Chalcopteryx rutilans* (Rambur, 1842) | Pe, Ar, Bo | PA, AM, RO, GO, MT. | 16, 19, 21, 29. | 7884, 8899. | Duílio stream. |
| **Protoneuridae** | | | | | |
| *Epipleoneura metallica* Rácenis, 1955 | Ve. | MT, ES, TO, MA. | 5, 6, 16, 19, 21. | 8983, 9083, 9114. | Murtinho stream. |
| *Neoneura sylvatica* Hagen *in* Selys, 1886 | Ve, Ar, Bo. | BA, MG, RJ, SP, RO, TO, MS, MT. | 7, 12, 16, 21, 29. | 10303, 7996, 8010, 8968, 8972, 8988, 9029, 9031, 9033, 9036, 9037, 9042, 9046, 9047, 9059, 9115, 9139, 9145, 9148, 9151, 9158, 9178, 9183, 9361, 9633, 9686. | Buritizinho stream, Caveira stream, Chupador stream, Murtinho stream. |
| *Protoneura tenuis* Selys, 1860 | TT, Ve, Pe. | PA, RO, MT. | 16, 21, 30. | 7800, 8934, 9857. | Buriti stream, Chupador stream. |

**Acknowledgments:** We would like to thank Frederico A. A. Lencioni for confirming the identification of some species. To FAPEMAT, Proc. nº 465866/2009 and Long–Term Ecological Program of CNPq (provided Post–doc fellowships to J.D. Batista). The staff of the Laboratório de Entomologia de Nova Xavantina and Helena S.R. Cabette provided work space and Lourivaldo A. Castro helped in the field work. Diogo B. Provete helped with English language and Leandro Juen with revision. LBC received a master's fellowship from CAPES. P. De Marco is continuously supported by CNPq productivity grants.

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Received: April 2013
Accepted: March 2014
Published online: May 2014
Editorial responsibility: Rodolfo Mariano